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Quality Engineering Test Report

SERIES: PPQ-1003 100W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY

SAMPLE:

A : PPQ-100B V1: 5V / 10A
V2: 12V / 3.4A
V3: -12V / 0.6A
V4: -5V / 0.6A

B : PPQ-100C V1: 5V / 10A
V2: 15V / 2.6A
V3: -15V / 0.6A
V4: -5V / 0.6A

C : PPQ-100D V1: 5V / 8A
V2: 24V / 2A
V3: 12V / 0.6A
V4: -12V / 0.6A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A:60.64VAC~267VAC	P
2	LINE REGULATION	I/P:90~264VAC SPEC: O/P:FULL LOAD A: V1: ±1% V2: ±2% V3: ±2% V4: ±1% B: V1: ±1% V2: ±2% V3: ±2% V4: ±1% C: V1: ±1% V2: ±2% V3: ±2% V4: ±1%	A: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.05% V3: -0.00% ~ +0.00% V4: -0.00% ~ +0.00% B: V1: -0.11% ~ +0.00% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.00% V4: -0.12% ~ +0.12% C: V1: -0.11% ~ -0.11% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.00% V4: -0.049% ~ -0.049%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1: ±2% V2: ±6% V3: ±2% V4: ±2% B: V1: ±2% V2: ±6% V3: ±2% V4: ±2% C: V1: ±2% V2: ±6% V3: ±2% V4: ±2%	A: V1: -0.000% ~ +0.118% V2: +0.154% ~ +0.908% V3: -0.049% ~ +0.099% V4: -0.12% ~ +0.12% B: V1: -0.00% ~ +0.118% V2: -0.563% ~ +1.619% V3: -0.08% ~ +0.08% V4: -0.00% ~ +0.24% C: V1: -0.237% ~ +0.118% V2: -0.492% ~ +1.48% V3: -0.099% ~ +0.099% V4: -0.00% ~ +0.00%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:100~264VAC SPEC: O/P:A:MIN TO FULL LOAD A: V1: ±3% V2: ±8% V3: ±5% V4: ±5% B:MIN TO FULL LOAD B: V1: ±3% V2: +10%~-6% V3: ±5% V4: ±5% C:MIN TO FULL LOAD C: V1: ±3% V2: ±8% V3: ±5% V4: ±5%	A: V1: -0.118% ~ +0.237% V2: -3.09% ~ +0.512% V3: -0.156% ~ +0.099% V4: -0.86% ~ +0.14% B: V1: 0.199% ~ -0.375% V2: -1.06% ~ +3.58% V3: -0.166% ~ +0.04% V4: -0.502% ~ +0.00% C: V1: -0.375% +0.118% V2: -1.598% +4.116% V3: -0.208% 0.058% V4: -0.049% +0.099%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
5	RIPPLE & NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: V1: 100mV V2: 150mV V3: 100mV V4: 100mV B: V1: 100mV V2: 150mV V3: 100mV V4: 100mV C: V1: 100mV V2: 200mV V3: 100mV V4: 100mV	A: V1: 9mV V2: 10mV V3: 12mV V4: 17mV B: V1: 7mV V2: 12mV V3: 10mV V4: 18mV C: V1: 3mV V2: 18mV V3: 16mV V4: 21mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:0.85A	A:0.593A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD SPEC:40A	A:27.304A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC:CH1.CH2:-5%~+10%	A: CH14.5390V~5.682V CH2:10.455V~13.539V B: CH1:4.535V~5.89V CH2:13.75V~17.822V C: CH1:4.503V~5.84V CH2:4.46V~5.83V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:800mS	A: 317.68mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:16mS	A:28.98mS	P
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A: 75% B: 76% C: 78%	A:73.68% B:77.37% C:79.59%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~135%	A:1119 % B:116 % C:122 %	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING SPEC: CH1:5.75V~6.75V	A:CH1: 6.27V B:CH1: 6.215V C:CH1: 6.137V	P

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC: L-FG--<3.5mA
N-FG--<3.5mA</td><td>A: L-FG:1mA
N-FG:0.95mA</td><td>P</td></tr>
<tr><td>16</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/50MOhms MIN.
I/P-FG: 500VDC/50MOhms MIN.
O/P-FG: 500VDC/50MOhms MIN.</td><td>A: O/P-FG >100MOhms
I/P-O/P >100MOhms
I/P-FG >100MOhms</td><td>P</td></tr>
<tr><td>17</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3KVAC/ 1 min. (10mA CUT-OFF)
I/P - FG: 1.5KVAC/ 1 min. (10mA CUT-OFF)
O/P - FG: 0.5KVAC/ 1 min. (10mA CUT-OFF)</td><td>A: I/P-O/P :6.92mA
I/P-FG :5.79mA
O/P-FG :8.15mA</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD
TA:23.6ºC BURN-IN DURATION :2hrs</td><td>A:NON BREAK</td><td>P</td></tr>
<tr><td rowspan="3">19</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P:230 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:-8.8ºC</td><td>A:
AFTER 1 hrs
POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:55.8ºC</td><td>A:
AFTER 1.5 hrs
NON BREAK</td></tr>
<tr><td>3.High Humidity, High Voltage After On/Off Test
I/P:272VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:26.6ºC
AMBIENT HUMIDITY:95%</td><td>A:
AFTER 17 hrs
POWER ON/OFF OK</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">A: I/P :230VAC AFTER 17hr BURN-IN WITH COOLING 18CFM FAN
O/P :FULL LOAD TA:24.2ºC
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>32.8ºC</td><td>8.6ºC</td></tr>
<tr><td></td><td>Q1</td><td>MAIN TRANSISTOR</td><td>31.3ºC</td><td>7.1ºC</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>38.7ºC</td><td>14.5ºC</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>32.2ºC</td><td>8ºC</td></tr>
<tr><td></td><td>LF2</td><td>LINE FILTER TRANSFORMER</td><td>27.8ºC</td><td>3.6ºC</td></tr>
<tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>28.9ºC</td><td>6.7ºC</td></tr>
<tr><td></td><td>C111</td><td>O/P FILTER CAPACITOR</td><td>29.2ºC</td><td>5ºC</td></tr>
<tr><td></td><td>D17</td><td>O/P DIODE</td><td>52.5ºC</td><td>28.3ºC</td></tr>
<tr><td></td><td>RG1</td><td>REGULATER</td><td>47.1C</td><td>22.9ºC</td></tr>
<tr><td></td><td>D15</td><td>O/P DIODE</td><td>48.4ºC</td><td>24.2ºC</td></tr>
</table></td><td>P</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">A: SUPPOSE C111 IS THE MOST CRITICAL COMPONENT (with 18cfm fan)
I/P:230VAC O/P:FULL LOAD Ta:25ºC Tc111:29.2ºC Life: 1106937hrs
I/P:230VAC O/P:FULL LOAD Ta:55.8ºC Tc111:59.8C Life: 209744hrs</td><td>P</td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">A: FUSE :4AL/250V GFE/GMA
BRIDGE DIODE :D3SB60
LINE FILTER :LS-12280V E- 28 V4 1.2A
TRANSFOMER :TF662 EEL-28L
POWER SWITCHER :2SK1940
OUTPUT DIODE SBL3040PT 30A/40V
OUTPUT CAPACITOR :Rubycon 1200u/16v 105ºC ZL
INPUT CAPACITOR :HITACHI 100uF/400V HP-3 85ºC
P.C.B PPQ-1003 CEM-3 2OZ SS</td></tr>
</table>

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
200208014	RD SAMPLE PPQ100B PPQ100C PPQ100D	PASS	VINCENT	Max Lin
20020202	PRODOCT A208A17 PPQ100B PPQ100C PPQ100D	PASS	VINCENT	Max Lin